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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,045	09/23/2003	Alexei Sadochnikov	NSC1-H2610 (P04882 D1)	3995
7590 07/23/2004			EXAMINER	
STALLMAN & POLLOCK LLP			FENTY, JESSE A	
121 Spear Street, Suite 290			ART UNIT	
San Francisco, CA 94105			PAPER NUMBER	
			2815	

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/669,045	Applicant(s) SADOVNIKOV, ALEXEI	
	Examiner Jesse A. Fenty	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/23/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Metzger et al. (U.S. Patent No. 5,404,028).

In re claim 5, Metzger (e.g., Fig. 2) discloses a bipolar transistor and method of making the same comprising:

Forming a collector region (24) having a first conductivity type formed in a semiconductor substrate (18);

Forming a base region (26) having a second conductivity type opposite the first conductivity type formed on the collector region, the base region including a lower lightly doped layer (28) formed on the collector region and a relatively low doped upper layer formed on the lower layer; and

Forming an emitter region (30) having the first conductivity type formed on the upper layer of the base region.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Metzger et al. as applied to claim 5 above, and further in view of Miura et al. (U.S. Patent No. 5,793,067).

In re claim 6, Metzger discloses the device of claim 5, wherein the base region comprises GaInAs, but does not expressly disclose the base regions comprising SiGe. Miura (column 2, lines 37-44) discloses the use of GaInAs and SiGe as bipolar base layers. It would have been obvious for one skilled in the art at the time of the invention to use an SiGe layer as disclosed by Miura for the device of Metzger, as an alternative base material, to broaden the performance characteristics of the prior art. Miura and other references¹ disclose the interchangeability of GaInAs and SiGe as bipolar transistor materials.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Metzger/Miura as applied to claim 6 above, and further in view of Sato (U.S. Patent No. 6,049,098).

In re claim 7, Metzger in view of Miura discloses the device of claims 6, but does not expressly disclose the second dopant concentration [of the base] being zero. Sato discloses a similar device structure to Metzger, comprising an intrinsic base layer (7). It would have been obvious to one skilled in the art at the time of the invention to use an intrinsic base layer as

Art Unit: 2815


disclosed by Sato for the device of Metzger/Miura for the purpose of decreasing processing steps in the fabrication of the device. Intrinsic layers are essentially undoped layers, garnering their charge from the processing stage, rather than from a subsequent doping stage.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on 5/4-9 1st Fri. Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jesse A. Fenty
Examiner
Art Unit 2815

¹ Yang et al. (U.S. Patent No. 5,981,985) column 3, lines 41-45.